CHAPTER 3

METHODOLOGY

This investigation has been undertaken to study vocational aspirations of the home science college students and their opinions regarding adequacy of their preparation to take up vocations in relation to the following selected variables :

I Personal Factors

- type of study programme at B.Sc. level
- academic achievement
- socio - economic status
- overall modernity
- *sex- role confirmation
- *family's influence on vocational development

*[*Studied only in relation to vocational aspirations]*

II. Institutional Factors

- human resources
- physical resources
- instructional programme
- type of department
- system of education

Survey method was used for the investigation.

This chapter describes the following :

3.1 Pilot study

3.2 Determination of population and sample

3.3 Research tools for data collection

3.4 Validity of the tools

3.5 Pretesting and reliability of the tools

3.6 Procedure of data collection

3.7 Scoring and categorizing the data

3.8 Analysis of the data

3.1 Pilot Study

A pilot study was conducted in the year 1987. The investigator by this pilot study had tried to find out the following aspects to judge the feasibility of the study in real conditions :

1. Vocations reported by the home science colleges for which they are preparing the students after masters degree.

2. Size of the home science postgraduate population and availability of the respondents from various home science colleges in India.

3. Ability of the respondents to respond to the statements of the tool.

4. Level of the co-operation expected from the students, administrators, and teachers.

The pilot study was divided into two parts :

The first part of the pilot study was conducted in January 1987, to determine the size of the population available, and the vocations for which the home science colleges are preparing the students. A checklist (Appendix 1) was sent to 54 home science colleges with a self-addressed stamped envelope. Inspite of sending two reminders, only 27 colleges returned the filled checklists. Out of these 27 colleges only 24 colleges had masters programme in home science.

The second part of the pilot study was conducted in October 1987 to get the opinion of the home science college students of the departments of the Faculty of Home Science, M.S. University, Baroda, except clothing and textiles, as students were busy with some departmental work.

The vocations which were selected for the pilot study, were based upon the result of the first part of the pilot study. Five respondents were selected from each department. A three point rating scale (Appendix 2) was administered to the students. It had items on knowledge and abilities related to each selected vocation. The students were asked to express their opinion in terms of their preparation to take up vocations given in the rating scale.

The pilot study revealed that :

- the home science colleges reported that they were preparing the students for the vocations related to various

specializations.(Table 3.1). Percentages were calculated separately for each specialization. The number (N) varied as the number offering each specialization differed.

- adequate size of the population consisting of M.Sc. students was available to conduct the study in various specialization areas. (Table 3.2)
- the students, teachers, and administrators were co-operative.
- the respondents understood the language of the tool, and were able to respond in English. (Table 3.3)

3.2 Determination of Population and Sample

The population of the investigation consisted of M.Sc. students of home science colleges in India during the year 1989-90. To determine the population of the study, the list of home science colleges having M.Sc. (Home) programme was collected from various sources.

The most important reason for selecting masters students for the investigation was that it is generally this group who take up a vocation after completing the study programme. Most of the home science based vocations need specialized education which is mostly offered by home science colleges at masters level. This group while in college, is provided with study programme which may develop competencies in them to take up vocations.

Sampling for the present study was done at two levels :

- selection of the colleges
- selection of the respondents

TABLE 3.1

RESPONSES OF THE HOME SCIENCE COLLEGES IN TERMS OF PREPARATION FOR VOCATIONS

(a) PILOT STUDY PART 1
GENERAL VOCATIONS N = 24

VOCATIONS	RESPONSES %
College teacher	100
Researcher	90
Self-employment	72
Mass communicator	60
School teacher	50
Journalist	33

(b) VOCATIONS N = 15

VOCATIONS	RESPONSES %
Child welfare officer	95
Nursery school teacher	90
Project officer	80
Child and marriage counsellor	75
Speech therapist	30

Table 3.1 continued

CT VOCATIONS N = 10

VOCATIONS	RESPONSES %
Garment designer	85
Textile designer	80
Commercial pattern maker	70
Fashion Illustrator	60
Tailor	45
Weaving master	35

EE VOCATIONS N = 8

VOCATIONS	RESPONSES %
Extension officer	100
Administrator	75
Educational consultant	70
Social welfare worker	65

Table 3.1 continued

FN VOCATIONS N = 22

VOCATIONS	RESPONSES %
Dietitian	100
Food service manager	95
Nutritionist	85
Public health nutritionist	72
Food technologist	60

HM VOCATIONS N = 10

VOCATIONS	RESPONSE %
Interior decorator	80
Executive housekeeper	80
Home furnishing specialist	77
Equipment designer	60
Buyer	50
Institutional manager	40

TABLE 3.2

ESTIMATED NUMBER OF MASTERS STUDENTS IN HOME SCIENCE COLLEGES AS REVEALED BY THE PILOT STUDY

(b) PILOT STUDY - PART 1

SPECIALIZATIONS/COURSES OFFERED BY THE COLLEGES	ACTUAL NUMBER OF SEATS	EXPECTED NUMBER OF STUDENTS IN FINAL-YEAR (1989-90)
M.Sc.(Child development)	176	167
M.Sc.(Clothing and textiles)	62	60
M.Sc.(Education and extension)	61	61
M.Sc.(Foods and nutrition)	190	188
M.Sc.(Home management)	115	102
Total	604	578
M.A.(Home science)	38	22
Diploma in home science	73	68
Postgraduate diploma in :		
Pre-school education	10	10
Dietetics	51	51
Foods and nutrition	13	10
Dress designer	18	18
Communication media for children	15	15

TABLE 3.3

OPINION OF THE RESPONDENTS REGARDING ADEQUACY OF PREPARATION FOR VARIOUS VOCATIONS

PILOT STUDY PART 2

(A) KNOWLEDGE

VOCATIONS	SAMPLE SIZE	OPINIONS		
	N	Excellent %	Good %	Poor %
Child welfare officer	5	25.00	75.00	0.00
Nursery school teacher	5	50.00	50.00	0.00
Extension officer	5	34.00	50.00	16.00
Social welfare officer	5	34.00	50.00	16.00
Dietitian	5	16.00	84.00	0.00
Food service manager	5	0.00	100.00	0.00
Executive housekeeper	5	0.00	100.00	0.00
Interior decorator	5	0.00	100.00	0.00
College teacher	20	16.00	72.00	12.00
Researcher	20	6.00	74.00	20.00

Table 3.3 Continued

(B) ABILITY

VOCATIONS	SAMPLE SIZE	OPINIONS		
	N	Excellent %	Good %	Poor %
Child welfare officer	5	50.00	25.00	25.00
Nursery school teacher	5	0.00	50.00	50.00
Extension officer	5	0.00	35.00	65.00
Social welfare officer	5	34.00	50.00	16.00
Dietitian	5	0.00	84.00	16.00
Food service manager	5	0.00	100.00	0.00
Executive housekeeper	5	0.00	75.00	25.00
Interior decorator	5	0.00	100.00	0.00
College teacher	20	22.00	62.00	16.00
Researcher	20	10.00	70.00	20.00

Excellent ▸ Developed competency to a great extent.

Good ▸ Developed competency to a some extent.

Poor ▸ Developed competency to a very little extent.

3.2.1 SELECTION OF THE COLLEGES

Following criteria were kept in mind while selecting the home science colleges :

1. First the colleges having more than one specialization at masters level were selected. However, later on, colleges with only one specialization were also included to ensure substantial amount of data.

2. At least one college was included from each state or union territory. The colleges selected were either under the agriculture university, general university or a deemed university depending upon the availability. (Fig. 1).

3. Only those colleges were selected which were offering M.Sc. and not M.A. degree in home science.

A total of 35 colleges (Fig. 2) with various home science specializations were finally included in the study.

3.2.2 SELECTION OF THE RESPONDENTS

Respondents were taken from all the five major areas of home science:

Child development (CD)

Clothing and textiles (CT)

Education and extension (EE)

Foods and nutrition (FN)

Home management (HM)

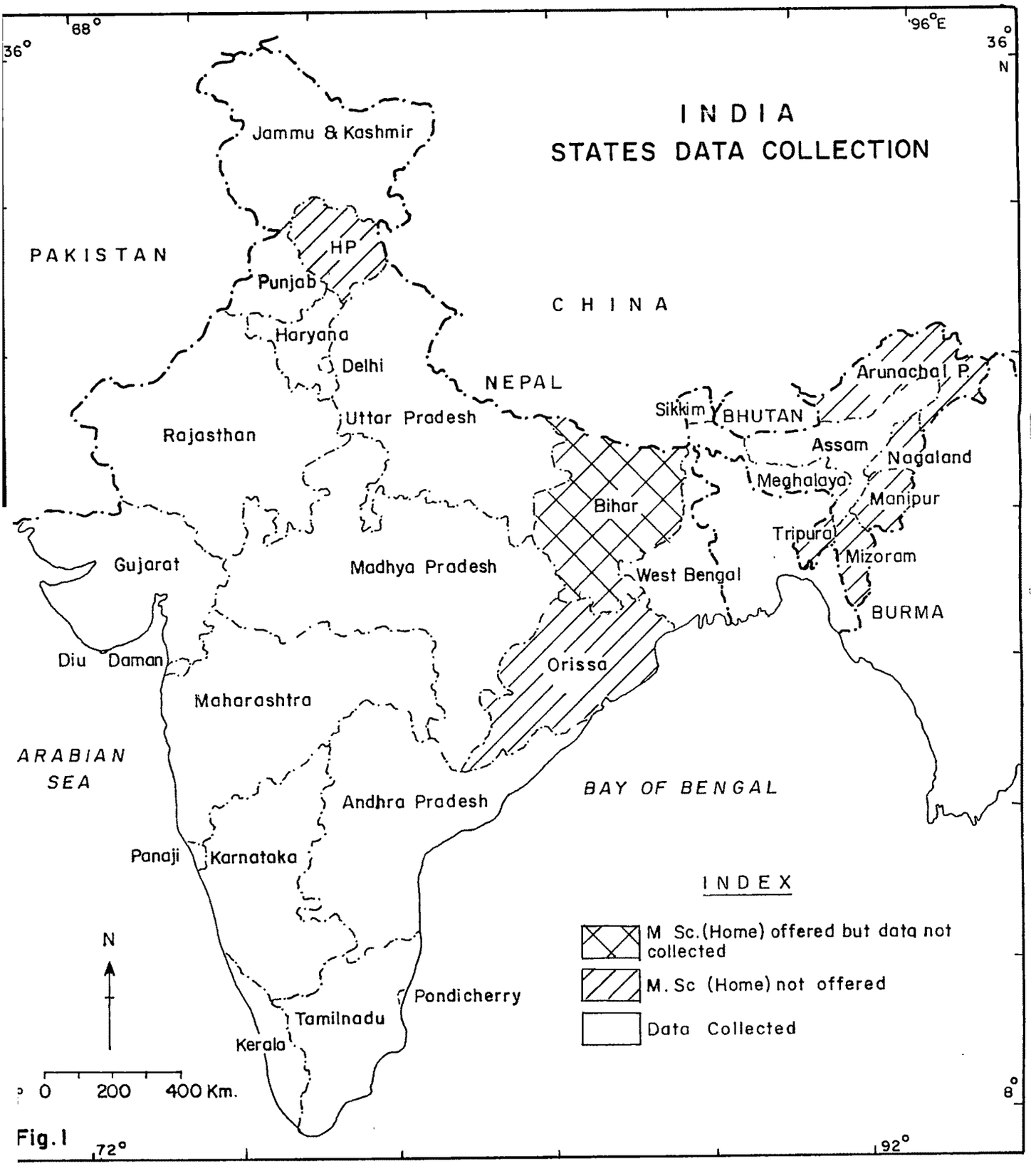
INDIA
STATES DATA COLLECTION
68°
96°E
36°
36° N
Jammu & Kashmir
PAKISTAN
HP
Punjab
CHINA
Haryana
Delhi
NEPAL
Uttar Pradesh
Rajasthan
Sikkim
BHUTAN
Arunachal P.
Assam
Nagaland
Meghalaya
Manipur
Tripura
Mizoram
Bihar
West Bengal
BURMA
Gujarat
Madhya Pradesh
Orissa
Diu
Daman
Maharashtra
ARABIAN SEA
BAY OF BENGAL
Andhra Pradesh
Panaji
Karnataka
Pondicherry
Tamilnadu
Kerala
N
0
200
400 Km.
8°
72°
92°
INDEX
M Sc.(Home) offered but data not collected
M. Sc (Home) not offered
Data Collected

Fig. 1


INDIA
HOME SCIENCE COLLEGES
DATA COLLECTION
68°
96° E
36°
36°
N
Jammu & Kashmir
Srinagar
PA KISTAN
HP
Ludhiana
Punjab
Chandigarh
C H I N A
Hissar
Pantnagar
Haryana
Delhi
NEPAL
Arunachal P.
Rajasthan
Sikkim
BHUTAN
Jaipur
Uttar Pradesh
Jorhat
Assam
Banasthali
Nagaland
Udaipur
Varanasi
Meghalaya
Manipur
Bihar
BANGLADESH
Tripura
V. Vidyanagar
Ujjain
Bhopal
Jabalpur
Mizoram
West Bengal
Gujarat
Indore
Calcutta
Vadodara
Madhya Pradesh
BURMA
Diu Daman
Nagpur
Orissa
Prabhani
Bombay
Maharashtra
ARABIAN SEA
Hyderabad
B A Y
O F
B E N G A L
Panaji
Dharwad
Andhra Pradesh
Karnataka
Tirupati
Bangalore
Madras
Pondicherry
Kerala
Tamilnadu
Gandhigram
Quilon
Trivandrum
One College
N
0
200
400 Km.
8°
72°
92°

Fig. 2

Exactly no sampling procedure could be applied due to various difficulties. Ensuring the size of data all the available students at the time of data collection were included who were : (1) from M.Sc. final year, (2) just about to appear for their final examinations,and (3) in the specialized M.Sc. programme and not from M.Sc. general programme.

Note : Some colleges have changed the nomenclature of specialization areas according to UGC guidelines as human resource department, textiles and clothing, extension and education/family resource management and extension, food science and nutrition, and family resource management. Here investigator has used the corresponding old nomenclature only.

3.3 Research Tools for Data Collection

A questionnaire was constructed to be used as a tool for the collection of data for the study. The items of the tool were prepared by the investigator after:

- collecting and consulting prescribed syllabus, UGC course outline, courses for M.Sc. programme.
- reading and reviewing books and research articles which were related to the present study.
- informal interviews with students and employers.
- discussing with various subject matter specialists.

The questionnaire had three sections :

SECTION 1

I. Personal Factors

1. Background information

2. Scale for socio-economic status

3. Scale for overall modernity

4. checklist for family's influence on vocational development

5. Checklist for sex-role confirmation

II. Institutional Factors

1. Checklist for human resources
2. checklist for instructional programme
3. checklist for physical resources

SECTION 2

checklist for the level of vocational aspiration

SECTION 3

A rating scale to study the opinion of the respondents regarding adequacy of their preparation to take up vocations.

3.3.1 DESCRIPTION OF THE TOOLS

3.3.1.1 SECTION 1. This section of the questionnaire had six parts :

First Part. This part consisted of a checklist and questions regarding the background of the respondents.

Second part. This part of the questionnaire consisted of a standardized socio-economic scale prepared by Desai (1987) to measure socio-economic status of the respondents. The original scale was in Gujarati. It was translated in English by the investigator with the permission of the author.

Third Part. This part had a scale to measure level of modernity of the respondents. The overall modernity was measured by 'OM Scale'. The scale was adapted and standardized by Mehta et al. (1974) from the original 'OM Scale of Modernity' for Indian conditions. The original scale was prepared by Inkles and Smith (1974).

Fourth Part. This part had a checklist to measure the influence of family on vocational development of the students. After reviewing the related literature a check list was prepared by the investigator to study the influence of family on vocational development. The checklist consisted of the items regarding the aspects suggested by Super (1967) which were as follows :

- mother's educational qualification
- mother's occupation
- number of working female members in the family
- preference of jobs for girls
- type of visitors visiting the house
- encouragement given by parents
- training for independence

Fifth Part. This part consisted of a checklist to measure sex-role confirmation of the respondents. The sex-roles were examined through a list of activities related to family and children. This list of activities was drawn from the work of Tittle (1981) and modified slightly by the investigator to suit Indian conditions. The list had 23 activities.

Sixth part. This part was prepared by the investigator, to study the institutional factors. It was kept separately from the main questionnaire because it was to be filled in by head of the departments of the colleges selected or any other senior staff member instructed by the head of the department. The items of the checklist covered the following areas :

I Human Resources

1. Posts of the teachers
2. Academic qualification of the teacher
3. Teaching experience of the teachers
4. Research activities of the teachers
5. Availability of the teachers to the students

II. Physical Resources

1. Facilities for duplicating educational materials
2. Library facility
3. Cafeteria facility
4. Transport facility
5. Laboratories and equipment

III. Instructional Programme

1. Methods of teaching used by the teachers
2. Teaching aids and equipment
3. Co-curricular and extra-curricular activities
4. System of education

3.3.1.2 SECTION 2. This section of the questionnaire consisted of a checklist prepared by the investigator to measure the level of vocational aspiration of the respondents. It was based on the work of khaund (1982). The checklist had following items :

- reasons to go for postgraduation
- type of job wanted
- reasons for taking up/not taking up a job
- list of specific vocations
- chances and efforts to get a planned job
- reasons for inspiring a particular job
- discussion with family members about preference of the vocation

3.3.1.3 SECTION 3. This section of the questionnaire comprised of a rating scale to study the opinion of the home science college students regarding adequacy of their preparation to take up vocations. The selection of the vocations were based on the responses of the colleges in pilot study. Only those vocations which were reported by the highest percentage of the colleges were only considered. Finally; two general vocations, and two vocations per area of

specialization were selected for the respondents; to study their opinions regarding adequacy of preparation for the vocations.

Following vocations were selected by the investigator for the purpose of present study:

Vocations - General

1. Teacher
2. Researcher

Vocations - Child development

1. Child welfare officer
2. Nursery school teacher

Vocations - Clothing and textiles

1. Garment designer
2. Textile designer

Vocations - Education and extension

1. Extension officer
2. Administrator

Vocations - Foods and nutrition

1. Dietitian
2. Food service manager

Vocation- Home management

1. Executive housekeeper
2. Interior designer

The competency checklist was prepared separately for each vocation by the investigator. The three components of competencies considered in the present research were;

knowledge, ability, and affective behaviour (positive outlook, interests, values, and attitudes) which could be developed in the study programme.

First of all, the competency checklist was given to five or more employers of various vocations depending on the availability of the employers(Appendix 3). This was done to validate the competencies already identified by the investigator. As the employers have an idea of the requirements for the vocations, they were chosen to validate the competencies needed for the vocations in Indian context. In this checklist the employers were to mark the competencies as required or not required for that particular vocation.

For making the final tool, only those competencies, which were checked as 'required' by 75 percent or more of the employers for each vocation, were selected.

The final tool to get opinion of the students for adequacy of their preparation to take up vocations was in the form of three point rating scale. Separate rating scale, having different items, was prepared by the investigator for each selected vocation.

This section of the questionnaire had four parts. Part one and part two consisted of two general vocations, namely, teacher and researcher. Part three and part four consisted of specialization related vocations. Each part had three aspects, namely, knowledge, ability and affective behaviour. Each aspect was further divided into sub-aspects and items.

All the respondents had to opine for part one and two. Regarding parts three and four which were related to specialized vocations, respondents had to opine for the vocations in their own area of specialization only. On the whole each respondent had to opine for four vocations, that is, teacher and researcher, and two vocations from her own specialization.

3.4 Validity of the Tools

All the sections and parts of the questionnaire were constructed in English language.

3.4.1 Content Validity of the Tools

The section one and two of the questionnaire were checked by the experts (Appendix 3) to see that all the aspects were included with proper emphasis.

The section two regarding vocational preparation of the questionnaire was checked by the employers of various vocations (Appendix 3) to see that all the aspects were included with proper emphasis.

3.4.2 Face Validity of the Tools

To ensure face validity of the questionnaire it was checked by experts (Appendix 3) for the following aspects:

- clarity, and correctness of the language
- wordings of the test contents
- structure of the test contents
- scoring pattern.

(All the final tools are given in (Appendix 4A & 4B).

3.5 Pretesting and Reliability of the Tools

The test-retest method was used for checking the reliability of the questionnaire. The first administration of the tools for pre testing was done on 1 July 1989 on 50 students who had passed out M.Sc. with different specializations in home science in June 1989. The respondents were from the Faculty of Home Science, M.S. University, Baroda, and Maharanis College, Jaipur.

The second administration was done on 16 July 1989, keeping a gap of a fortnight. According to Singh (1986, P.67), 'most appropriate and convenient time gap between the two administrations is a fortnight which is considered neither too short nor too long'.

Coefficient of correlation between the two sets of scores was computed to see the reliability of the tools to measure the family's influence on vocational development, sex-role confirmation, vocational aspirations, and opinion of the students regarding adequacy of their preparation to take up vocations.

The coefficient of correlation was computed by using the following formula :

$$r = \frac{\Sigma X Y}{\sqrt{\Sigma X^2 \times \Sigma Y^2}}$$

where r = coefficient of correlation

X = score of first test
Y = score of second test
(Garrett 1989, formula no.28, p.139)

Reliability coefficient for various tools and aspects were computed. (Table 3.4). All the tools were considered reliable.

TABLE 3.4

RELIABILITY COEFFICIENT OF EACH ASPECT OF THE QUESTIONNAIRE

(A) OVERALL RELIABILITY

ASPECT	SAMPLE SIZE N	RELIABILITY COEFFICIENT r
Family's influence on vocational development	50	0.75
Sex- role confirmation	50	0.58
Vocational aspirations	50	0.57

(B) ASPECT WISE RELIABILITY

VOCATIONS	SAMPLE SIZE N	RELIABILITY COEFFICIENT		
		Knowledge r	Ability r	Affective behaviour r
Teacher	50	0.57	0.77	0.41
Researcher	50	0.71	0.46	0.60
Child welfare officer	10	0.83	0.88	0.85

Table 3.4 Continued

VOCATIONS	SAMPLE SIZE N	RELIABILITY COEFFICIENT		
		Knowledge r	Ability r	Affective behaviour r
Nursery school teacher	10	0.61	0.85	0.87
Garment designer	10	0.76	0.93	0.76
Textile designer	10	0.87	0.90	0.866
Extension officer	10	0.67	0.46	0.51
Administrator	10	0.61	0.42	0.56
Dietitian	10	0.61	0.71	0.48
Food service manager	10	0.83	0.71	0.64
Executive housekeeper	10	0.72	0.73	0.84
Interior designer	10	0.94	0.50	0.94

3.6 Procedure for Data Collection

Prior to collection of the data, the investigator referred to various hand books and made contacts with various authorities in home science to get an up-to-date list of home science colleges offering M.Sc. programme. (Appendix 5).

The investigator sent a letter and a proforma (Appendix 6 A) for seeking permission from the colleges and to collect the necessary information required to conduct the study. These letters were sent to all the colleges for which the information was available. Even after sending two reminders only 20 colleges sent the permission with information.

The investigator tried to contact some more colleges personally, wherever possible, even if the permission was not available by post. Finally, the data were collected from 35 home science colleges of India. The data were collected personally by the investigator from 20 colleges, and for another 15 colleges it was collected by post (Table 3.5). It was not possible for the investigator to collect data personally from all over India, as data was to be collected simultaneously in the last part of the study programme from all the respondents.

TABLE 3.5

SPECIALIZATION AREAWISE DISTRIBUTION OF THE RESPONDENTS OF EACH HOME SCIENCE COLLEGE

COLLEGES	RESPONDENTS					
	CD N	CT N	EE N	FN N	HM N	TOTAL N
New Government College, Indore	–	3	–	5	–	8
Old Government College, Indore	7	–	–	–	18	25
Government College, Bhopal	11	–	–	–	–	11
M.H.College of Home science, Jabalpur*	7	9	–	–	10	26
Government College, Ujjain	6	–	–	–	5	11
J.B.A.S. women's College,Madras	13	15	–	–	–	28
Women's Christian College, Madras*	–	–	–	13	–	13
Queen's Mary College, Madras	–	–	–	–	7	7
Gandhigram Rural Institute, Gandhigram*	–	–	13	–	–	13
V.H.D.College of Home Science, Bangalore*	8	–	–	–	–	8
College of Home Science,Dharwad*	4	–	–	–	–	4
S.N.College, Quilon*	–	–	–	–	5	5

TABLE 3.5 Continued

COLLEGES	RESPONDENTS					
	CD (N)	CT (N)	EE (N)	FN (N)	HM (N)	TOTAL (N)
H.M. Maharaja College, Trivendrum*	–	–	8	–	–	8
Home Science College, Hyderabad*	3	4	–	–	3	10
S.V. College, Tirupati	7	–	7	7	–	21
P.G. Teaching Department, Nagpur	–	–	–	9	10	19
L.A.D. College, Nagpur	11	–	5	–	–	16
S.V.T. College of Home Science, Bombay	4	7	8	3	7	29
Nirmala Niketan, Bombay	4	7	–	7	–	18
College of Home Science, Parbhani*	–	–	–	4	4	8
G.B. Pant College of Home Science, Pantnagar*		–	5	–	7	–
Mahila College, Banaras	–	–	1	12	7	20
University of Rajasthan, Jaipur	6	–	–	8	–	14
Banasthali Vidyapeeth, Banasthali	8	6	–	8	–	22
College of Home Science, Udaipur	5	–	9	7	7	28

TABLE 3.5 Continued

COLLEGES	RESPONDENTS					
	CD (N)	CT (N)	EE (N)	FN (N)	HM (N)	TOTAL (N)
Lady Irwin College, Delhi	5	10	5	13	–	33
Institute of Home Economics, Delhi	–	8	–	–	–	8
College of Home Science, Jorhat*	4	–	–	5	–	9
Institute of Home Science, Calcutta*	9	–	–	–	2	11
College of Home Science, Hissar*	2	2	–	–	3	7
College of Home Science, Ludhiana*	4	5	4	9	2	24
Government Home Science College, Chandigarh	4	4	–	1	–	9
College of Home Science, Srinagar*	–	–	4	7	–	11
Faculty of Home Science, Baroda	6	5	3	4	4	22
P.G. Teaching Department, Vidyanagar	–	–	–	15	3	18
Total	138	90	67	144	97	536

**Data collected by Post.*

At the time of collecting data personally, first of all, the investigator made contacts with the principal of the colleges/head of the departments to make necessary arrangements for administering the questionnaire.

The students were collected in classes and questionnaires were personally administered by the investigator.

To collect the information regarding academic achievement of the students, they were asked to provide their B.Sc. results in the questionnaire itself. (Appendix 4 A item no 1.4). The investigator did not collect the record personally from the office of the college to keep uniformity, as part of the data had to be collected by mailing the questionnaires.

To collect the data by post, the questionnaires were mailed to the principal of the colleges/head of the departments with covering letter (Appendix 6 B). A self-addressed stamped envelope for registered post parcel was accompanied with the questionnaires for the sake of the convenience of the concerned person to send the questionnaires back.

The information regarding the colleges/departments were-collected, in the proforma (checklist) provided for the purpose (Appendix 4 B), with the help of the head of the department or the senior person of the department.

Investigator tried to make it a population survey, of the M.Sc.final year students. However, it was not possible, due to the following reasons :

1. Despite making enquiries, contacts from various sources, it was not possible to get an up-to-date list of home science colleges with M.Sc. programme in India.

2. Many of the colleges did not respond at all to the investigator.

3. Inspite of providing permission to collect data, and arranging to send it by post, a few colleges did not send the questionnaires back.

4. Inspite of insisting and requesting personally, few colleges did not allow the investigator to collect the data.

5. Due to disturbances and general elections in various parts of the country, students were not available to the investigator, even after two to three visits.

6. Some colleges even after being visited personally and given self-addressed stamped envelope, for the students not available that time due to various reasons, did not send the questionnaires back.

7. As the data were collected at the end of the academic session, the students were busy in functions, tests, and submission of thesis.

8. A large leading home science institution of Tamil Nadu; inspite of being visited twice by the investigator with request from the Dean, Faculty of Home Science, Baroda to the Vice Chancellor of the institution, did not oblige in data collection ultimately.

The data were collected from 536 respondents belonging to 35 colleges between 1 January 1990 and 30 April 1990. (Table 3.5)

3.7 Scoring And Categorizing the Data.

The weightage was given to various items of all the parts of the questionnaire. The total number of the respondents which might fall in each category, the actual score of the respondents, and the mean score indicating adequacy of institutional factors were considered while deciding the range of score for each category.

3.7.1 SCORING AND CATEGORIZING SECTION 1

3.7.1.1 First Part. The first part of the questionnaire contained questions regarding background information of the respondents of the study. No scoring had to be done for this part and the variables were categorized directly according to the question as :

Variable	Categories	Range of Score
1. Type of study programme at B.Sc. level	Specialization	
	General	—
	Excellent	81% - 97%
2. Academic achievement	Good	65% - 80%
	Average	50% - 64%

3.7.1.2 Second Part. This part of the questionnaire had items to measure socio-economic status of the respondents. The scoring was done according to Desai's standardized scoring pattern (Appendix 4 C). As very few respondents were falling in 'low' and 'middle low' categories. These categories were merged to form, ' low' category. the final categorization was done as follows :

Variable	Category	Range of Score
	High	26 - 35
Socio-economic status	Middle	21 - 25
	Low	0 - 20

3.7.1.3 Third Part. To find out the level of overall modernity the scoring was done according to standardized scale. In all the questions 1-12, except 3, the first answer represents the modern answer and gets the score of '1' and rest of all the answers are considered conservative and get the score of '0'. For question number '3' the modern answer is second. For question number '13' a higher number of

problems is coded as the modern answer (Appendix 4 A (3.0)). The possible score of this part was from 0 - 13. It was categorized as :

Variable	Category	Range of Score
Overall Modernity	Modern	8 - 13
	Conservative	4 - 7

3.7.1.4 Fourth Part. This part of the questionnaire had items for family's influence on vocational development.

The item number '1' and '2' were scored according to Desai's scoring key (Appendix 4 C). Rest of the items were assigned values ranging from 'a' to 'e' depending upon the number of responses . The scoring was done as follows for all the items :

Value	Weightage
a	1
b	2
c	3
d	4
e	5

This part had possible score ranging from 11 to 51. However, actual score ranged from 19 to 49.

The mean score of the respondents was 33. Categorization was done as follows :

Variable	Category	Range of Score
Family's influence on vocational development	More influence	34-47 Above mean
	Less influence	19-33 Mean & below

3.7.1.5 Fifth Part. This part had activities to examine sex-role confirmation. The scoring for each activity was done as follows :

Activity	Weightage
1. Only woman should do	1
2. Only a man should do	1
3. Either of the two/both	2

This part had minimum score of 23 and maximum score of 46. The mean score of the respondents was 40. Categorization was done as follows :

Variable	Category	Range of Score
Sex-role confirmation	Less confirmed	41-46 Above mean
	More confirmed	23-40 Mean & below

3.7.1.6 Sixth Part. This part had items on institutional factors. It had items of human resources, physical resources, and instructional programme (Appendix 4 B).

I. Human Resources. The items of human resources were scored as follows (Refer Appendix 4 B, Section A).

Item number 1. (Posts of teachers)

Posts	Number of posts	Weightage
	3 or more	10
Professor	2	9
	1	8
	5 or more	7
Reader	3 - 4	6
	1 - 2	5
	15 or more	4
	10 - 14	3
Lecturer	5 - 9	2
	1 - 4	1

Item number 2 (Academic qualification)

Academic qualification	Categories (percent of total staff)	Weightage
Ph.D./Ph.D. just submitted	51% and above	6
	25% - 50%	5
	Less than 25%	4
M.Phil./working for Ph.D.	51% and above	3
	upto 50%	2
M.Sc.	-	1
Only B.Sc.	-	0

Item number 3 (Experience)

Number of Years	Categories (percent of total staff)	Weightage
Above 15	51% and above	7
	upto 50%	6
8 - 15	51% and above	5
	upto 50%	4
3 - 7	15% and above	3
	upto 50%	2
0 - 2	-	1

Item number 4. (Methodology course)

Course	Categories (percent of total staff)	Weightage
M.Ed./B.Ed.	51% and above	4
	upto 50%	3
Diploma/short course	51% and above	2
	upto 50%	1

Item number 5 (Research activities)

Activities	Categories (percent of total staff)	Weightage
Guiding Ph.D./Ph.D. + M.Sc./M.Phil thesis	51% and above	5
	26% - 50%	4
	upto 25%	3
	51% and above	2

Guiding only M.Sc. Thesis	upto 50%	1
None	–	0

Note : Item number 2 to 5 were categorized considering the percent of total staff in each category.

Item Number	Weightage
6,7,8	0 – 3
9	0 – 1
10	1 – 3
11	1 – 4

The responses were assigned weightages ranging from 0-4; '0' for 'most negative' and '4' for 'most positive' response.

This part had minimum score of 5 and maximum score of 77. The mean score of the responses was 47. Categorization was done as follows :

Variable	Category	Weightage
Human resources	Adequate	48 – 53 Above mean
	Not adequate	25 – 47 Mean & below

II Physical Resources. Items on physical resources were scored as follows : (Refer Appendix 4 B, Section C).

Item Number	Weightage
1,7,13 and 17	1 (for each response)
2, 3	1 – 4
5, 14	1 – 4

6,8,9,11	0 – 1
10	0 – 1
12,15	1 – 1 (for each response)
16	0 – 3
18,19	1

Note : If library was present in the department/faculty along with the main library then the weightage was given as 7. Item number 4 was deleted later on. Item number 20 was related to the laboratory equipment for each department. Each sub-item was scored as.

Category	Weightage
Adequate	4
Just enough	3
Not enough	2
Poor	1
Yes	1
NO	0

Summated score of item number 20 was divided by number of items and then added to the rest of the summated score of physical resources. The responses were assigned weightages ranging from 0-7; '0' for 'most negative' and '7' for 'most positive' response.

This part had minimum score of 8 and maximum score of 58. The mean score of the responses was 43. Categorization was done as follows :

Variable	Category	Range of Score
Physical resources	Adequate	44-58 Above mean
	Not adequate	23-43 Mean & below

III Instructional Programme. Items on instructional programme were scored as follows : (Refer Appendix 4 B, Section B).

Item Number	Weightage
1,2,6	1 (for each response)
3,4,9	0 – 2
5	1 – 5 (for each response)
7	1 – 3 (for each response)
8	0 – 1
10	0 – 2

Items number 11,12,13,14 were not scored and were directly categorized according to the question

The responses were assigned weightages ranging from 0-5; '0' for 'most negative' and '5' for 'most positive' response. This part had minimum score of 3 and maximum score of 53. The mean score of the responses was 26. Categorization was done as follows :

Variable	Category	Range of Score
Instructional programme	Adequate	27-41 Above mean
	Not Adequate	6-26 Mean & below

IV. Type of Department. This variable was categorized according to the question as :

Variable	Category	Description
Type of department	Separate	Separate department for each specialization
	Combined	Two or more specializations combined

V. System of Education. This variable was categorized according to the question as :

Variable	Category
System of Education	Semester
	Annual

3.7.2 SCORING AND CATEGORIZING SECTION 2

This section of the questionnaire contained items on vocational aspiration. The items 3 and 4 were scored as follows :

Item Number	Number of Reasons	Weightage
3	7 - 9 reasons	8
	5 - 6 reasons	7
	3 - 4 reasons	6
	1 - 2 reasons	5
4	7 - 8 reasons	4
	5 - 6 reasons	3
	3 - 4 reasons	2
	1 - 2 reasons	1

The rest of the items were assigned values ranging from 'a' to 'd' depending upon the number of responses. The scoring was done as follows for all the remaining items :

Value	Weightage
a	1
b	2
c	3
d	4

This part had possible score ranging from 3 to 35. The respondents were categorized on the basis of their summated scores as follows :

Level of vocational aspiration	Range of score
Highly aspired	24-30
Less aspired	16-23
Not aspired	3-7

3.7.3 SCORING AND CATEGORIZING SECTION 3 AND 4

These sections had three aspects on adequacy of preparation for two general vocations and two vocations related to each specialization. All the aspects, that is, knowledge, ability, and affective behaviour were further divided into sub aspects and items. Some of the sub -aspects were further divided at the time of analysis only.

Each item was scored separately as :

Level of adequacy	Weightage
Great extent	3
Some extent	2
Little extent/not at all	1

Respondents were categorized for their opinions on the basis of their summated scores as follows :

Level of opinion	Range of Score
2.60 - 3.00	Favourable
1.60 - 2.59	Some what favourable
1.00 - 1.59	Not favourable

Refer Table 3.6

The level of favourableness of the opinions regarding each sub-aspect was decided depending upon the total score of each sub-aspect or item. The respondents were categorized for the level of opinion for each sub-aspect/item as score scored by them based upon these ranges.

3.8 Analysis of the Data

The plan for analysis of data was made in consultation with Dr.N.S. Pathak, Professor, Faculty of Education and Psychology, M.S. University, Baroda.

TABLE 3.6

RANGE OF SCORE FOR EACH SUB-ASPECT/ITEM

TOTAL SCORE OF EACH ITEM SUB-ASPECT		LEVEL OF OPINION OF THE RESPONDENTS RANGE (SCORE)		
Minimum Score	Maximum Score	Favourable	Somewhat Favourable	Not Favourable
1	3	3	2	1
3	9	8 - 9	5 - 7	3 - 4
4	12	10 - 12	7 - 9	4 - 6
5	15	12 - 15	9 - 11	5 - 8
6	18	15 - 18	10 - 14	6 - 9
7	21	17 - 21	12 - 16	7 - 11
8	24	19 - 24	14 - 18	8 - 13
9	27	22 - 27	15 - 21	9 - 14
10	30	24 - 30	17 - 23	10 - 16
11	33	25 - 33	19 - 25	11 - 18
12	36	29 - 36	20 - 28	12 - 19

Different statistical measures for various purposes were used as follows :

Purpose	Statistical measures
1. Background information of the respondents and the colleges of home science	Percentage

2.	Level of vocational aspiration, and the opinion of the respondents regarding adequacy of their preparation for the vocations	Percentage
3.	Sub-aspect/Itemwise opinion of the respondents regarding adequacy of their preparation for the vocations	Percentage
4.	Differences in the level of vocational aspiration and the opinions of the respondents regarding adequacy of their preparation for the vocations	F test (ANOVA) t test Means Inter-correlation and correlation
5.	Variations in the opinions within the groups of the respondents regarding adequacy of their preparation for the vocations	Coefficient of Variation (CV)
6.	Differences in the level of vocational aspiration and the opinions of the respondents regarding adequacy of their preparation for the vocations in relation to selected variables	Chi-square and Coefficient of contingency (C)
7.	Relationship between vocational aspirations and the opinions of the respondents regarding adequacy of their preparation for the vocations	Correlation Coefficient

Formulas used for various statistical measures : The computer was used for the purpose of analysis.

1. ANOVA (F test)

$$F = \frac{\text{Larger Variance}}{\text{Small Variance}} \quad \text{or} \quad \frac{\text{Between - groups Variance}}{\text{Within - groups variance}}$$

(Singh 1986, p.509)

Between - groups Variance	–	Variation in the mean of each group from the total mean of all groups
Within - groups variance	–	Average variability of scores within each group

For calculating ANOVA between the three aspects of each vocation, the mean of each aspect was divided by the number of items as the number of items were different for each aspect.

2. t- test :

Wherever, the null hypothesis was not accepted, t-test was applied after F test to evaluate mean differences.

Following formulas were used to calculate t - test according to the nature of the groups.

(a) t-ratio from independent groups :

$$t = \frac{(M_1 - M_2) - 0}{SE_D}$$ (Formula no.21.12, Singh 1986, p.505)

where M_1 = mean of the first group

M_2 = mean of the second group

SE_D = standard error of the difference between two sample means.

$$SE_D = \sqrt{SE_{M_1}^2 + SE_{M_2}^2}$$ (Formula no.21.13, Singh 1986, p.506)

SE_{M_1} = standard error of the first mean

SE_{M_2} = standard error of the second mean

$$SE_M = \frac{SD}{\sqrt{N}}$$ (Formula no. 21.14, Singh 1986, p.506)

(b) t-ratio from correlated groups

$$t = \frac{M_1 - M_2 - 0}{SE_D}, SE_D = \sqrt{SE_{M_1}^2 + SE_{M_2}^2 - 2r_{12} SE_{M_1} SE_{M_2}}$$

(Formula no 21.15, Singh 1986, p.507)

where r^2 = Coefficient of correlation between two sets of scores. The rest of the sub-aspects are defined like those in formula 21.13.

3. Co-efficient of correlation (r)

$$r = \frac{N \Sigma X Y - \Sigma X \Sigma Y)}{\sqrt{[N \Sigma X^2 - (\Sigma X)^2][N \Sigma Y^2 - (\Sigma Y)^2]}}$$

X = obtained score I

Y = obtained score II

ΣX^2 = sums of the squared X

ΣY^2 = sums of the squared Y

N = Number of cases

Interpretation of r in terms of verbal description. Garrett 1981, p.176

r from, .00 to ± .20-indifferent or negligible relationship;

r from ± .20 to ± .40-low correlation;present but slight;

r from ± .40 to ± .70-substantial or marked relationship;

r from ± .70 to ± 1.00-high to very high relationship.

4. Coefficient of variation (CV) or coefficient of relative variability :

$$CV = \frac{100\sigma}{M}$$ (Formula no. 19, Garrett 1989, p.57)

σ = standard deviation of the group

M = mean of the group

5. Chi-square test (X^2)

$$X^2 = \Sigma \left[\frac{(f_o - f_e)^2}{f_e} \right]$$ (Formula no .69, Garrett 1989, p.253)

f_o = frequency of occurrence of observed

f_e = expected frequency of occurrence on some hypothesis

* For the purpose of calculating chi-square, the summated score of all the three aspects of each vocation was taken.

* when table entries were '0' for all the cells under any one category, they were not taken into consideration for degree of freedom (that category was omitted).

6. Coefficient of contingency (C)

$$C = \sqrt{\frac{X^2}{N+X^2}}$$ (Formula no. 102, Garrett 1989, p. 394)

X^2 = value of chi-square

N = size of the sample